

REMARKS

Claims 6-22 are pending in this application. By this Amendment, claims 6, 7, 10, 11 and 14 are amended for clarity. No new matter is added by this Amendment.

I. Allowable Subject Matter

Applicants appreciate the indication that claims 12-14 contain allowable subject matter.

II. Product by Process Claims

The Office Action asserts that claims 6, 7, 10, 11 and 14 recite a product by process. In particular, the indicated claims are alleged to be product by process claims because they recite waveguides which are "formed by creating a linear defect." Claims 6, 7, 10, 11 and 14 do not recite a product by process. Nonetheless, for clarity, these claims are amended to replace "formed by creating" with "defined by."

III. Claim Rejections Under 35 U.S.C. §102

Claims 6, 10, 15-19, 21 and 22 are rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,130,969 to Villeneuve et al. (Villeneuve). The rejection is traversed.

Claim 6 recites an output waveguide which is "positioned so that its distance from the input waveguide at a predetermined section along its length is shorter than its distance at another section." (emphasis added) With such a feature, the resonator resonates with an electromagnetic wave having a predetermined frequency solely at the predetermined section, and a signal crosstalk is prevented at other sections. (See page 7, lines 5-22 of the specification).

This feature, as well as the benefit associated therewith, are not taught by Villeneuve. Instead, Villeneuve discloses a bus and a drop that are oriented in parallel, such that the distance at any section is the same and no distance between sections is shorter than another

distance. Therefore, Villeneuve fails to disclose an output waveguide being positioned so that "its distance from the input waveguide at a predetermined section along its length is shorter than its distance at another section," as recited in claim 6.

Claim 6 further recites an electromagnetic wave frequency filter that comprises "a two-dimensional photonic crystal having a slab-shaped body provided with the plurality modified refractive index areas." With this feature, the electromagnetic waves including the component of the predetermined frequency are contained within the slab-shaped body, and no leak is allowed. This assures the high transfer efficiency of the predetermined frequency wave between the input waveguide and the output waveguide.

This feature, as well as the benefits associated therewith, is also not taught by Villeneuve. Instead, the photonic crystal taught in Villeneuve is constructed with high-refractive index posts regularly standing on a slab-shaped substrate. See col. 5, lines 13-14 of Villeneuve. With this "open top" structure, which does not vertically contain electromagnetic waves, electromagnetic waves may leak out from the top. That is, the Q-value of the resonator cannot be set so high that the loss of electromagnetic waves to be filtered becomes impractically large.

Claim 10, as amended, recites an output waveguide, "having the linear defect of the modified refractive index areas." At least this feature is not taught by Villeneuve. The waveguides disclosed in Villeneuve are obtained by removing rows of posts from an array of posts with a high dielectric constant standing on the silicon substrate. Villeneuve does not disclose waveguides having a linear defect of the modified refractive index areas, as recited in claim 10. For at least this reason, withdrawal of the rejection under 35 U.S.C. §102(b) is respectfully requested.

For the foregoing reasons, claims 6 and 10, as well as claims 15-19, 21 and 22 dependent therefrom, are not anticipated or rendered obvious by Villeneuve. Withdrawal of the rejection under 35 U.S.C. §102(b) is respectfully requested.

IV. Claim Rejections Under 35 U.S.C. §103

Claims 7-9, 11 and 20 are rejected under 35 U.S.C. §103(a) over Villeneuve. The rejection is traversed.

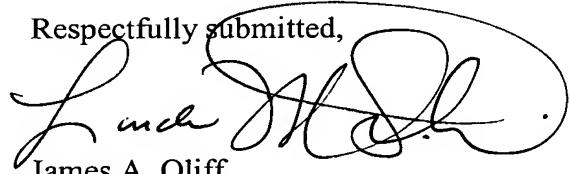
As discussed above, Villeneuve fails to anticipate or render obvious independent claims 6 and 10. Claims 7-9 and 20 depend from claim 6, and claim 11 depends from claim 10. Thus, Villeneuve fails to anticipate or render obvious dependent claims 7-9, 11 and 20 for the same reasons as claims 6 and 10, and for the additional features they recite. Withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "James A. Oliff", enclosed within an oval-shaped scribble.

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